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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/618,049
Filing Date: July 11, 2003
Appellant(s): MARDILOVICH ET AL.

Rouget F. Henschel
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 3, 2008 appealing from the Office action mailed July 15, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

(a) In the first Ground of Rejection (Ground A), identified by applicant as "Rejection of claims 1-4, 6-12, 14-15 and 18-20 as obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,120,588 ("Jacobson") in view of U.S. Patent No. 4,301,196 ("McCormack")", the claims that are rejected under this ground are actually **claims 1-4, 6-12, 14-15, 18 and 20.**

(b) In the fourth Ground of Rejection (Ground D), identified by applicant as "Rejection of claims 1-4, 6-12, 14-15 and 18-20 as obvious under 35 U.S.C. § 103(a) over Jacobson in view of McCormack as applied to claims 1-4, 6-12, 14-15, and 18-20 above and further in view of U.S. Patent No. 5,403,649 ("Morgan")", the rejection using Jacobson, McCormack and Morgan was actually provided by the Examiner as a separate rejection, that should read "**Rejection of claims 1-4, 6-12, 14-15, 18 and 20 as obvious under 35 U.S.C. § 103(a) over Jacobson in view of McCormack and U.S. Patent No. 5,403,649 ("Morgan")**". Please note also that claim 19 was not rejected under this specific ground.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,120,588	JACOBSON	9-2000
4,301,196	MCCORMACK ET AL	11-1981
3,918,927	WELLS	11-1975
5,403,649	MORGAN ET AL	4-1995
8-319575	JAPAN	12-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Ground A. Claims 1-4, 6-12, 14, 15, 18 and 20 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson (US 6120588) in view of McCormack (US 4301196).

Jacobson teaches a method of forming metal patterns on a substrate. *Column 9, lines 15-30.* A pattern is decided for application. *Column 9, lines 15-30.* A metal composition is ink-jetted in the pattern. *Figure 9A and column 9, line 60 through column 10, line 10 (the silver nitrate).* A separate reducing agent composition with a reducing agent is also ink jetted in the pattern. *Figure 9A and column 9, line 60 through column 10, line 10 (the aldehyde).* The reducing agent contacts the metal composition and reacts with the metal salt to form a reduced metal. *Figure 9A and column 9, line 60 through column 10, line 10 (by the process of "electroless plating," since electroless plating provides reduction of*

metal salts using reducing agents to form metal (the metallic traces as described)). While Jacobson describes silver nitrate plating, the reference teaches that many other chemistries known in the art of electroless plating can be used. *Column 10, lines 1-5.*

Claim 2: the metal can be silver, etc. *Figure 9A and column 9, line 60 through column 10, line 10 (the silver nitrate will reduce to silver).*

Claim 4: the salt can be $AgNO_3$. *Column 10, line 1.*

Claim 6: the reducing agent can include aldehyde, although formaldehyde is not specifically taught. *Figure 9A and column 9, line 60 through column 10, line 10 (the aldehyde).*

Claim 12: the reducing agent is ink jetted on the pattern in a offset area with respect to the metal composition. *Figure 9A.* A portion of each material would not overlap each other due to the offset nature of their sprays.

Jacobson teaches all the features of these claims except (1) the electroless active layer and that it is applied by ink jetting an electroless initiator (claim 1), (2) the specific reducing agent (claims 6-7), (3) the specific substrate (claim 8), (4) the heating (claim 9), (5) the multiple layers and depth (claims 10-11), (6) the initiator features (claims 14, 15, 18), (7) the circuit pattern (claim 20) and (8) that the metal composition includes a metal salt of palladium (claim 3).

However, McCormack teaches a method of applying an electroless copper plating. *Column 3, lines 60-68.* The surface can be pretreated with an initiator treatment, such as by depositing an electroless initiator of palladium and tin, to provide an

electroless active layer to prepare the surface for plating. *Column 6, line 50 through column 7, line 5.* The pretreatment can be by immersing the substrate in the initiator. *Column 7, lines 1-5.* The electroless plating can use a composition with metal and reducing agent of formaldehyde or hydrazines, which is applied to the pretreated electroless active layer. *Column 3, lines 60-65, column 5, lines 40-50 and column 6, lines 50-65.* The substrate can be ceramics, glass, polymers, etc. *Column 7, lines 30-35.* During treating the temperature can be 20-80 degrees C. *Column 7, lines 20-30.* The coating is to be applied until a desired thickness has been built up. *Column 7, lines 5-10.* McCormack teaches that the plating can be used to apply circuit patterns. *Column 1, lines 25-50.* The plating composition can be applied by immersion or spraying. *Column 7, lines 5-10.* The plating composition can include various metals from Group VIII of the periodic table and can include palladium provided as a metal salt, thus providing a metal salt of palladium would be applied on the substrate as part of the metal application. *Column 4, line 67 through column 5, line 10 and column 14, lines 20-55 (see the use of palladium chloride in the plating bath, as shown in the table).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson to use the conventional electroless plating features and materials taught by McCormack in the inkjet electroless plating process with an expectation of a desirable plated article being achieved, because Jacobson teaches a method of inkjet electroless plating that can be used with conventional electroless plating chemistry and McCormack teaches conventional electroless plating

chemistry, including (1) the use of an initiator layer of electroless active material, (2) conventional reducing agents such as hydrazines, (3) specific substrate materials, such as ceramics, (8) specific materials desired to be plated, including palladium, (4) the conventional heating of the compositions during application to temperatures in the claimed range, (6) the conventional materials (palladium and tin) and application of the initiator layer and (7) the conventional deposition of the material to form circuit patterns. As to (5) the multiple applications to form layers of the desired depth, it would have been obvious to one of ordinary skill in the art to do so, given McCormack's teaching to provide the treatment until the desired depth has been reached, and one of ordinary skill in the art would optimize the depth based on the desired purpose of the coating to be applied. (1) (6) It further would have been obvious to deposit the electroless initiator by ink jetting in a non-continuous pattern to correspond to the overlaying metal pattern to be applied so that the minimum amount of initiator material can be used, because as demonstrated by Jacobson, it is well known to use ink jet applicators to apply metal containing compositions onto a substrate in non-continuous patterns for plating surfaces (figure 9A, for example), and one would expect predictable patterning application results from using ink jet applicators with the known metal containing initiator composition of McCormack.

Ground B. Claim 5 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson in view of McCormack as applied to claims 1-4, 6-12, 14, 15, 18 and 20 above, and further in view of Japan 08-319575 (hereinafter '575).

Jacobson in view of McCormack teaches all the features of this claim except what palladium salt can be used.

However, '575 teaches that $Pd(NH_3)_4Cl_2$ can be used as the metal salt for an electroless deposition. *Abstract, and note the translation, paragraphs (0010) and (0012), showing that the impregnated palladium salt will reduce to Pd metal on the surface using the reducing agent).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson in view of McCormack to use $Pd(NH_3)_4Cl_2$ as the palladium salt when depositing palladium as suggested by '575 in order to provide a desirable palladium coating, because Jacobson in view of McCormack teaches electroless coating using conventional materials, and that palladium salts can be used in the plating bath (palladium chloride as shown), and Jacobson shows electroless plating where separately applied salt is reduced by reducing agent, and '575 teaches that $Pd(NH_3)_4Cl_2$ is a desirable metal salt for electrolessly depositing palladium where the applied salt is reduced by reducing agent.

Ground C. Claim 19 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson in view of McCormack as applied to claims 1-4, 6-12, 14, 15, 18 and 20 above, and further in view of Wells (US 3918927).

Jacobson in view of McCormack teaches all the features of this claim except the marring of the substrate.

However, Wells teaches the application of activator solution with palladium chloride is conventionally performed in acidic environments. *Column 11, lines 54-57.* Wells also teaches that it is well known to prepare a surface for electroless coating by marring the surface by the etching with acid before coating. *See column 3, lines 25-35 and 65-66 and column 11, lines 40-45.*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson in view of McCormack to mar the substrate by etching from acid as suggested by Wells in order to provide a desirable electroless coating, because Jacobson in view of McCormack teaches that an initiator coating with palladium can be applied and Wells teaches that when applying such a coating it is known to provide it in an acid environment which would further provide marring by etching from the acid (as part of the application of the initiator) and also teaches to further prepare the surface before plating by etching with acid (which is also a marring process).

Ground D. Claims 1-4, 6-12, 14, 15, 18 and 20 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson (US 6120588) in view of McCormack (US 4301196) and Morgan et al (US 5403649).

Jacobson teaches a method of forming metal patterns on a substrate. *Column 9, lines 15-30.* A pattern is decided for application. *Column 9, lines 15-30.* A metal composition is ink-jetted in the pattern. *Figure 9A and column 9, line 60 through column 10, line 10 (the silver nitrate).* A separate reducing agent composition with a reducing agent is also ink jetted in the pattern. *Figure 9A and column 9, line 60 through column 10, line 10 (the aldehyde).* The reducing agent contacts the metal composition and reacts with the metal salt to form a reduced metal. *Figure 9A and column 9, line 60 through column 10, line 10 (by the process of "electroless plating," since electroless plating provides reduction of metal salts using reducing agents to form metal (the metallic traces as described)).* While Jacobson describes silver nitrate plating, the reference teaches that many other chemistries known in the art of electroless plating can be used. *Column 10, lines 1-5.*

Claim 2: the metal can be silver, etc. *Figure 9A and column 9, line 60 through column 10, line 10 (the silver nitrate will reduce to silver).*

Claim 4: the salt can be $AgNO_3$. *Column 10, line 1.*

Claim 6: the reducing agent can include aldehyde, although formaldehyde is not specifically taught. *Figure 9A and column 9, line 60 through column 10, line 10 (the aldehyde).*

Claim 12: the reducing agent is ink jetted on the pattern in a offset area with respect to the metal composition. *Figure 9A*. A portion of each material would not overlap each other due to the offset nature of their sprays.

Jacobson teaches all the features of these claims except (1) the electroless active layer and that it is applied by ink jetting an electroless initiator (claim 1), (2) the specific reducing agent (claims 6-7), (3) the specific substrate (claim 8), (4) the heating (claim 9), (5) the multiple layers and depth (claims 10-11), (6) the initiator features (claims 14, 15, 18), (7) the circuit pattern (claim 20) and (8) that the metal composition includes a metal salt of palladium (claim 3).

However, McCormack teaches a method of applying an electroless copper plating. *Column 3, lines 60-68.* The surface can be pretreated with an initiator treatment, such as by depositing an electroless initiator of palladium and tin, to provide an electroless active layer to prepare the surface for plating. *Column 6, line 50 through column 7, line 5.* The pretreatment can be by immersing the substrate in the initiator. *Column 7, lines 1-5.* The electroless plating can use a composition with metal and reducing agent of formaldehyde or hydrazines, which is applied to the pretreated electroless active layer. *Column 3, lines 60-65, column 5, lines 40-50 and column 6, lines 50-65.* The substrate can be ceramics, glass, polymers, etc. *Column 7, lines 30-35.* During treating the temperature can be 20-80 degrees C. *Column 7, lines 20-30.* The coating is to be applied until a desired thickness has been built up. *Column 7, lines 5-10.* McCormack teaches that the plating can be used to apply circuit patterns. *Column 1, lines 25-50.* The

plating composition can be applied by immersion or spraying. *Column 7, lines 5-10.* The plating composition can include various metals from Group VIII of the periodic table and can include palladium provided as a metal salt, thus providing a metal salt of palladium would be applied on the substrate as part of the metal application. *Column 4, line 67 through column 5, line 10 and column 14, lines 20-55 (see the use of palladium chloride in the plating bath, as shown in the table).*

Morgan teaches that it is well known to provide catalytic inks (which act as an "initator" or "active" layer for electroless platings as they allow electroless plating on a non-conductive surface) that are printed in patterns on surfaces to be electrolessly plated. *Column 1, lines 15-45.* The inks conventionally contain a metal for catalyzing electroless deposition, such as silver, copper or palladium, in the form of dissolved salts, hydrosols or particulates. *Column 1, lines 15-35.* The inks can applied by ink-jetting using palladium salt in an organic solvent. *Column 1, lines 30-45.*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson to use the conventional electroless plating features and materials taught by McCormack in the inkjet electroless plating process with an expectation of a desirable plated article being achieved, because Jacobson teaches a method of inkjet electroless plating that can be used with conventional electroless plating chemistry and McCormack teaches conventional electroless plating chemistry, including (1) the use of an initiator layer of electroless active material, (2) conventional reducing agents such as hydrazines, (3) specific substrate materials, such

as ceramics, (8) specific materials desired to be plated, including palladium, (4) the conventional heating of the compositions during application to temperatures in the claimed range, (6) the conventional materials (palladium and tin) and application of the initiator layer and (7) the conventional deposition of the material to form circuit patterns. As to (5) the multiple applications to form layers of the desired depth, it would have been obvious to one of ordinary skill in the art to do so, given McCormack's teaching to provide the treatment until the desired depth has been reached, and one of ordinary skill in the art would optimize the depth based on the desired purpose of the coating to be applied. (1) (6) It further would have been obvious to modify Jacobson in view of McCormack to deposit the electroless initiator by ink jetting in a non-continuous pattern to correspond to the overlaying metal pattern to be applied as suggested by Morgan so that the minimum amount of initiator material can be used, because as demonstrated by Jacobson, it is well known to use ink jet applicators to apply metal containing compositions onto a substrate in non-continuous patterns for plating surfaces (figure 9A), as demonstrated by McCormack, it is desirable to apply initiator/activator layer materials before electroless plating, and as demonstrated by Morgan, it is well known to use ink jet applicators to apply metal containing catalyst activating inks in patterns before electrolessly plating.

Ground E. Claim 5 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson in view of McCormack and Morgan as applied to claims

1-4, 6-12, 14, 15, 18 and 20 above, and further in view of Japan 08-319575 (hereinafter '575).

Jacobson in view of McCormack and Morgan teaches all the features of this claim except what palladium salt can be used.

However, '575 teaches that $Pd(NH_3)_4Cl_2$ can be used as the metal salt for an electroless deposition. *Abstract, and note the translation, paragraphs (0010) and (0012), showing that the impregnated palladium salt will reduce to Pd metal on the surface using the reducing agent).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson in view of McCormack and Morgan to use $Pd(NH_3)_4Cl_2$ as the palladium salt when depositing palladium as suggested by '575 in order to provide a desirable palladium coating, because Jacobson in view of McCormack and Morgan teaches electroless coating using conventional materials, and that palladium salts can be used in the plating bath (palladium chloride as shown), and Jacobson shows electroless plating where separately applied salt is reduced by reducing agent, and '575 teaches that $Pd(NH_3)_4Cl_2$ is a desirable metal salt for electrolessly depositing palladium where the applied salt is reduced by reducing agent.

Ground F. Claim 19 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson in view of McCormack and Morgan as applied to claims 1-4, 6-12, 14, 15, 18 and 20 above, and further in view of Wells (US 3918927).

Jacobson in view of McCormack and Morgan teaches all the features of this claim except the marring of the substrate.

However, Wells teaches the application of activator solution with palladium chloride is conventionally performed in acidic environments. *Column 11, lines 54-57.* Wells also teaches that it is well known to prepare a surface for electroless coating by marring the surface by the etching with acid before coating. *See column 3, lines 25-35 and 65-66 and column 11, lines 40-45.*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jacobson in view of McCormack and Morgan to mar the substrate by etching from acid as suggested by Wells in order to provide a desirable electroless coating, because Jacobson in view of McCormack and Morgan teaches that an initiator coating with palladium can be applied and Wells teaches that when applying such a coating it is known to provide it in an acid environment which would further provide marring by etching from the acid (as part of the application of the initiator) and also teaches to further prepare the surface before plating by etching with acid (which is also a marring process).

(10) Response to Argument

Ground A. Rejection of claims 1-4, 6-12, 14-15, 18 and 20 under 35 USC 103 using Jacobson in view of McCormack

Claim 1

At pages 5-6 of the October 3, 2008 Appeal Brief, appellant argues that the Office erred in interpreting the Jacobson disclosure regarding the known use of "many other chemistries", as meaning that a person of ordinary skill in the art would consider that all known electroless plating compositions are suitable for application by ink jet plating; because Jacobson's examples, including that using a jet containing a metal or semiconductive salt and a jet containing a reducing agent, do not include an electroless initiator. Appellant argues that Jacobson's statement regarding "chemistries suitable for the present system" does not relate to electroless initiators. Therefore, according to appellant, the Office erred in characterizing Jacobson as containing a general disclosure relevant to electroless initiators, and Jacobson would not have led a person of ordinary skill in the art to use ink jet technology to apply other components to the circuit board. Appellant further argues, at pages 6-8, that the teaching of McCormack would also not suggest the use of ink-jet technology to apply the initiator, with McCormack teaching to plate copper using a bath, with ink jet technology not related to immersing a substrate in a bath, and a person of ordinary skill in the art having no reason to incorporate into Jacobson's ink-jet system a feature of McCormack meant for copper deposition by immersion in a bath. Appellant further argues that the Examiner has provided no clear articulated reasoning that addresses the ink-jetting of the electroless initiator.

The Examiner has reviewed appellant's arguments, however, her position is maintained. While neither Jacobson alone or McCormack alone specifically teach that the electroless active (initiator) layer should be applied by ink jetting, the combination

of these references provides the suggestion to one of ordinary skill in the art to provide the electroless active layer by ink jetting. Jacobson does not specifically address the application of material by ink jetting other than for the electroless plating (metal salt and, separately, reducing agent). However, Jacobson does teach to look to examples of electroless plating chemistries in the art, which would, at the least suggest to look at plating chemistries such as those described in McCormack, which is specifically an example of electroless plating chemistry in the art. Thus, it is the Examiner's position that it would clearly be suggested from a reading of Jacobson and McCormack that the electroless plating described in McCormack (i.e., the application of copper using materials in the described solution) would be advantageously done by ink-jet treatment. This is especially true as McCormack specifically does not limit the electroless plating of the solution materials to immersion, teaching that the application can also be done by "spraying" (see column 7, lines 5-10). McCormack further teaches that it is well known in the art that when various surfaces are to be electrolessly plated, such as non-metallic or inert metal, the substrate should first be pretreated with an electroless sensitizer (activator, initiator) to prepare the surface for electroless plating, i.e. providing an electroless active layer of initiator material (column 6, line 50 through column 7, line 10). Therefore, one of ordinary skill in the art would certainly be suggested that when applying the electroless plating materials as described by McCormack using the process of Jacobson, to also pretreat the surface with an electroless initiator solution as described by McCormack to allow plating on a variety of substrates.

The only question remaining, therefore, is would it have been obvious to one of ordinary skill in the art looking at Jacobson and McCormack to also apply the electroless initiator solution by ink jetting. The Examiner is of the position that it would have been obvious to one of ordinary skill in the art looking at the teaching of both references as a whole to also deposit the electroless initiator for the electroless active layer by ink jetting a pattern of the initiator to correspond to the metal pattern to be applied by electroless plating, for the beneficial purpose of using the minimum amount of initiator material. This is because Jacobson demonstrates the known use of ink jet applicators to provide patterns of metal salt containing composition onto a surface for plating, and one would expect predictable patterning application results from using these known ink jet applicators with the known metal containing initiator composition of McCormack, since McCormack would require application of the composition for the process to work. The Examiner is not taking the position that any material in the world would be ink jetted or suggested to be ink jetted by the teaching of Jacobson, rather that a similar compositional liquid to that of Jacobson as described by McCormack (both Jacobson and McCormack describe the use of metal containing compositions in the form of salts -- Jacobson, column 9, line 60 through column 10, line 5 provides application of the metal salt composition using a jet; McCormack, column 6, lines 60-65, column 7, lines 1-5, teaches the use of a metal salt containing initiator composition) would be suggested to be applied by ink jetting. The Supreme Court, in KSR International Co. V. Teleflex, Inc. 550 U.S. __, 82 USPQ 2d 1385 (2007) has indicated that design incentives or

market forces provide a motivation to adapt known work in one field of endeavor to use variations on the work in the same field (See MPEP 2143 (F)). One of ordinary skill in the art would always want simple and efficient methods for coating for cost-efficient methods of providing a product at lower cost, and thus the Examiner's articulated reason of "so that the minimum amount of initiator material can be used" would be a clear and acceptable reason for modifying the references as per the instructions of the Supreme Court. Here, as discussed above, the variation from the known application method for electroless plating materials, including using a metal salt composition jet (Jacobson), would simply be to apply a different metal salt composition for activation purposes, for the market forces reasoning as described.

Claim 2

Appellant further argues that Jacobson's disclosure of silver does not cure the deficiencies as to ink jetting a described above, at page 8 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 3

Appellant further argues that McCormack's disclosure of palladium does not cure the deficiencies as to ink jetting a described above, at pages 8-9 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for

the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 4

Appellant further argues that Jacobson's disclosure of $AgNO_3$ does not cure the deficiencies as to ink jetting a described above, at page 9 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 6-7

Appellant further argues that Jacobson's disclosure of aldehyde or McCormack's of hydrazine does not cure the deficiencies as to ink jetting a described above, at page 10 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 8-12

Appellant further argues that McCormack's disclosure of substrate types and corresponding process steps does not cure the deficiencies as to ink jetting a described above, at page 10 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 14-15

Appellant further argues that McCormack's disclosure of electroless initiator materials does not cure the deficiencies as to ink jetting a described above, at page 11 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 18

Appellant further argues that as to non-continuous plating, no clear articulation of the rejection is provided, but rather the Examiner provides conclusory statements and does not cure the deficiencies as to ink jetting a described above, at pages 11-12 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed. The rejection also clearly discusses that the pattern should be non-continuous, to correspond to the overlaying metal pattern to be applied, which as shown in Jacobson can be non-continuous (Figure 9A).

Claim 20

Appellant further argues that McCormack's disclosure of plating to form circuit patterns does not cure the deficiencies as to ink jetting a described above, at page 12 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Ground B. The rejection of Claim 5 using Jacobson in view of McCormack, further in view of Japan '575

Appellant further argues that '575's disclosure of the use of the palladium salt for electrolessly depositing does not cure the deficiencies as to ink jetting a described above, at page 13 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Ground C. The rejection of claim 19 using Jacobson in view of McCormack, further in view of Wells

Appellant further argues that Wells's disclosure of marring does not cure the deficiencies as to ink jetting a described above, at pages 13-14 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Ground D. The rejection of claims 1-4, 6-12, 14-15, 18 and 20 using Jacobson in view of McCormack and Morgan

Claim 1

At pages 15-16 of the Appeal Brief of October 3, 2008, appellant argues that the combination of Jacobson, McCormack and Morgan is improper because Morgan teaches

away from ink-jetting. Appellant argues that the Office provided Morgan as to the ink jetting of the initiator, but that it teaches away from the invention by discouraging the use of ink jetting catalyst inks (column 2, lines 28-43), where it indicates that a major deficiency is the slow speed of such method, and goes on to teach the use of gravure roll coating instead. Appellant argues that this matches the facts given in the MPEP 2145.X.D.1, as given in I*n re Grasselli* (apparently meaning MPEP 2145.X.D.2)

The Examiner has reviewed appellant's arguments, however, her position is maintained. It is her position that Morgan does not "teach away" from the use of ink jet printing of the initiator material to the extent claimed. Morgan indicates that it is known in the art to ink jet print the initiator (catalyst) materials (column 1, lines 15-45) before electroless plating. At worst, Morgan then goes on teach that ink-jet printing has a slow speed (column 2, lines 25-45). This provides that the use of printing provides an acceptable working process, just with a slow application. Appellant has cited, as to not using a reference that "teaches away", *In re Grasselli*, which taught not to combine a reference that suggested the interchangability of antimony and alkali metal, with one "expressly excluding antimony". This is not the case with Morgan. Rather, the facts provided by the teaching of Morgan are described in *In Re Gurley* as cited in MPEP 2145.X.D.1, :

> A prior art reference that "teaches away" from the claimed invention is a significant factor to be considered in determining obviousness; however, "the nature of the teaching is highly relevant and must be weighed in substance. A known or obvious composition does not become patentable simply because it has been described as somewhat

> inferior to some other product for the same use." *In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)* (Claims were directed to an epoxy resin based printed circuit material. A prior art reference disclosed a polyester-imide resin based printed circuit material, and taught that although epoxy resin based materials have acceptable stability and some degree of flexibility, they are inferior to polyester-imide resin based materials. The court held the claims would have been obvious over the prior art because the reference taught epoxy resin based material was useful for applicant's purpose, applicant did not distinguish the claimed epoxy from the prior art epoxy, and applicant asserted no discovery beyond what was known to the art.)

Here, the fact that the known process ink jetting taught by Morgan would be described as "somewhat inferior" to a gravure process, due to the slow speed, is not a teaching away from the use of ink jetting for the same reasons as given in *In re Gurly* and MPEP 2145.X.D.1 above. This is not an express exclusion of a process. Here, the speed of the coating process may be inferior, but a working, acceptable coated product still results. The Examiner notes that appellant's claims have no requirement as to speed of coating, for example.

Claim 2

Appellant further argues that Jacobson's disclosure of silver does not cure the deficiencies as to ink jetting a described above, at page 16 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 3

Appellant further argues that McCormack's disclosure of palladium does not cure the deficiencies as to ink jetting a described above, at page 16 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 4

Appellant further argues that Jacobson's disclosure of $AgNO_3$ does not cure the deficiencies as to ink jetting a described above, at page 17 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 6-7

Appellant further argues that Jacobson's disclosure of aldehyde or McCormack's of hydrazine does not cure the deficiencies as to ink jetting a described above, at pages 17-18 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 8-12

Appellant further argues that McCormack's disclosure of substrate types and corresponding process steps does not cure the deficiencies as to ink jetting a described above, at page 18 of the Appeal Brief. The Examiner has reviewed these arguments,

however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claims 14-15

Appellant further argues that McCormack's disclosure of electroless initiator materials does not cure the deficiencies as to ink jetting a described above, at pages 19-20 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Claim 18

Appellant further argues that as to non-continuous plating, no clear articulation of the rejection is provided, but rather the Examiner provides conclusory statements and does not cure the deficiencies as to ink jetting a described above, at pages 19-20 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed. The rejection also clearly discusses that the pattern should be non-continuous, to correspond to the overlaying metal pattern to be applied, which as shown in Jacobson can be non-continuous (Figure 9A).

Claim 20

Appellant further argues that McCormack's disclosure of plating to form circuit patterns does not cure the deficiencies as to ink jetting a described above, at page 20 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection

is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Ground E. The rejection of Claim 5 using Jacobson in view of McCormack and Morgan, further in view of Japan '575

Appellant further argues that '575's disclosure of the use of the palladium salt for electrolessly depositing does not cure the deficiencies as to ink jetting a described above, at pages 20-21 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

Ground F. The rejection of claim 19 using Jacobson in view of McCormack and Morgan, further in view of Wells

Appellant further argues that Wells's disclosure of marring does not cure the deficiencies as to ink jetting a described above, at page 21 of the Appeal Brief. The Examiner has reviewed these arguments, however, the rejection is maintained for the reasons as discussed with regard to Claim 1 above, as to the suggestion to ink jet the initiator as claimed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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